

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

- 1.-2. (cancelled)
3. (canceled)
4. (currently amended) [[A]] An isolated serine recombinase consisting of the amino acid sequence of SEQ ID NO: 2 wherein said amino acid sequence contains a single mutation at G101.
- 5.-46. (cancelled)
47. (previously amended) The catalytic domain according to claim 70 wherein the mutation is G101S.
- 48.-51. (cancelled)
52. (currently amended) The catalytic domain according to claim 70, wherein the mutations correspond to E124Q, E124A or M103I in Tn3 resolvase ~~(SEQ ID NO: 2)~~ of SEQ ID NO: 2.
53. (canceled)
54. (previously amended) The catalytic domain according to claim 70 wherein the mutations correspond to R2A and E56K in Tn3 resolvase of SEQ ID NO:2.
55. (canceled)
56. (canceled)
57. (currently amended) The catalytic domain according to claim 70 wherein the mutations correspond to R2A, E56K, D102Y, [[M103I]] M103I and Q105L in Tn3 resolvase of SEQ ID NO:2.
58. (previously amended) The catalytic domain according to claim 57, wherein the catalytic domain also has a mutation corresponding to V107F in Tn3 resolvase of SEQ ID NO:2.
59. (previously amended) The catalytic domain according to claim 70 which is selected from the group consisting of Tn3 resolvase (SEQ ID NO:2), Sin recombinase (SEQ ID NO:5), $\gamma\delta$ resolvase (SEQ ID NO:1), Tn 21 resolvase (SEQ ID NO:3), β resolvase (SEQ ID NO:4), ISXc5 resolvase (SEQ ID

NO:6), Gin resolvase (SEQ ID NO:7), Hin resolvase (SEQ ID NO:8), Methanococcus jannaschii resolvase (SEQ ID NO:9), IS607 resolvase (SEQ ID NO:10), ccrA1 resolvase (SEQ ID NO: 11), TN4451 resolvase (SEQ ID NO:12), TP901-1 resolvase (SEQ ID NO:13) and ΦC31 resolvase (SEQ ID NO:14).

60.-66. (cancelled)

67. (previously amended) A kit for recombining a first DNA sequence and a second DNA sequence said kit comprising a serine recombinase with the catalytic domain according to claim 70.

68.-69. (cancelled)

70. (currently amended) [[A]] An isolated catalytic domain of a serine recombinase which has been mutated at a position corresponding to G101 of Tn3 resolvase (SEQ ID NO: 2), wherein said catalytic domain consists of ~~at least one additional mutation selected from the group consisting of a mutation~~ mutations at a position corresponding to ~~V107, A117, A89, F92, L66, G70, M76, T109, E124, E124, M103, R2, E56, D102~~[[,]] and Q105 ~~and R121 of Tn3 resolvase (SEQ ID NO: 2)~~ of SEQ ID NO: 2.